

This listing of claims will replace all prior versions and listings of claims in the application:

1. (previously presented) A device for kinetically controlling the rate of vapor diffusion during crystal growth said device having a first end, a second end, and a discrete diffusion pathway extending from the first end to the second end, wherein said pathway controls the vapor diffusion rate between a crystal growth solution and a reservoir solution, the first end of the device configured for placement in a well of a plate containing the reservoir solution .

2. (previously presented) The device of claim 1 wherein the diffusion pathways of the device are discrete channels.

3. (cancelled)

4. (previously presented) The device of claim 2 wherein channel size or geometry can be actively controlled.

5. (currently amended) The device of claim 1 wherein the device is made of a material porous to a vapor moving between the crystal growth solution and the reservoir solution, the material provided to affect vapor diffusion rates.

6-13. (cancelled)

14. (previously presented) A device for kinetically controlling the rate of vapor diffusion during crystal growth in a crystal growth solution comprising:

(a) a reservoir unit comprising a plurality of reservoir chambers.

(b) a channel unit comprising a plurality of discrete channels configured to control the rate of vapor diffusion between the reservoir chamber and the crystal growth solution, each of the channels having a geometry different from each other channel to provide a different diffusion rate; and

(c) a selection unit comprising an opening wherein the opening is large enough not to control the rate of vapor diffusion between the reservoir chamber and the crystal growth solution;

wherein the channel unit and the selection unit rotate individually to align the reservoir chamber, one of the discrete channels, and the opening.

15. (previously presented) The device of claim 14 further comprising a cover for sealing the crystal growth solution in a space adjacent the selection unit, the space in vapor communication with the selection unit.

16. (previously presented) The device of claim 14 wherein the channel unit further comprises an opening wherein the opening is large enough not to control the rate of vapor diffusion.

17. (previously presented) The device of claim 14 wherein the channel unit is sealed onto the reservoir unit and the selection unit is sealed onto the channel unit.

18. (previously presented) The device of claim 14 wherein at least one of the discrete channels of the channel unit is actively controlled.

19. (previously presented) An assembly for aiding crystal growth, said assembly comprising:

a container for holding a reservoir solution;

a device configured for engaging the container, the device having a first end configured for placement within the container, a second end, and a discrete diffusion pathway extending from the first end to the second end; and

a seal configured to engage the second end, wherein when the seal engages the second end the seal and the second end define a space for the crystal growth solution.

20. (previously presented) The assembly of claim 19 wherein the diffusion pathway of the device is a discrete channel.

21. (previously presented) The assembly of claim 20 wherein the device further comprises a second pathway, wherein the pathway is between the crystal growth solution and the reservoir solution and the second pathway is between the crystal growth solution and a second reservoir solution held in the container.

22. (previously presented) The assembly of claim 20 wherein the channel size or geometry can be actively controlled.

23. (previously presented) The assembly of claim 19 wherein the device is made of a material porous to a vapor moving between a crystal growth solution and the reservoir solution.

24. (previously presented) The assembly of claim 19 wherein the seal is optically clear.

25. (previously presented) The assembly of claim 24 wherein the seal is a cover slip.

26. (previously presented) The assembly of claim 24 wherein the seal is optically clear tape.

27. (previously presented) The assembly of claim 19 wherein the seal is configured to be removably secured to the device.

28. (previously presented) The assembly of claim 19 wherein said device is configured to be removably secured to the container.

29. (previously presented) The device of claim 1, wherein said device is configured to be removably secured to the well.

30. (previously presented) The device of claim 29 wherein the device further comprises an O-ring to provide a seal between the device and an inner surface of the well.

31. (previously presented) The assembly of claim 28 wherein the device further comprises an O-ring to provide a seal between the device and the inner sides of the container.

32. (previously presented) The device of claim 1 further comprising a coverslip for engaging the second end, the coverslip for holding a drop of the crystal growth solution.

33. (previously presented) The device of claim 1 wherein the pathway is a 1 mm, 2 mm, 3 mm, or 4 mm channel.

34. (currently amended) The device of claim 1 further comprising a collar adjacent the second end, the collar having a width ~~large~~ larger than the diameter of the well.

35. (previously presented) The device of claim 1 wherein the plate is a 24-well plate.

36. (previously presented) A device for controlling the rate of vapor diffusion during crystal growth, the device comprising

a first end having a depression to provide a space for a crystal growth solution,
a second end for placement into a well of a plate, the well containing a reservoir solution,

a generally cylindrical body extending from the first end to the second end,
and

a diffusion pathway extending through the body from the first end to the second end, the diffusion pathway having a geometry to control the rate of vapor diffusion between the crystal growth solution and the reservoir solution.

37. (previously presented) The device of claim 36 further comprising an O-ring around the generally cylindrical body, to provide a seal between the device and the well.

38. (previously presented) The device of claim 36 further comprising a seal that engages the first end.

39. (previously presented) The device of claim 36 wherein the diffusion pathway is selected from the group consisting of a 1 mm, 2 mm, 3 mm, and 4 mm channel.

40. (previously presented) The device of claim 39 wherein the plate is a 24-well plate.

41. (previously presented) The device of claim 36 wherein the body further comprises an optically transparent insert to permit optical monitoring of crystal growth.